

Serial No. 10/729,388  
Wakefield, et al.  
Filed December 5, 2003

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Response to Office Action  
Examiner: Mark A. Radke  
Group Art Unit: 2165

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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TITLE: Visualization of Integrated Structured and Unstructured Data  
FILING DATE: December 5, 2003 EXAMINER NAME: Mark A. Radke  
SERIAL NO.: 10/729,388 GROUP ART UNIT: 2165  
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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Amendment and Claims Listing**

Please amend the claims as follows:

Claim 1 (currently amended) 1. A computer program product located to one or more storage media devices usable to perform integration of mixed format data, said computer program product comprising instructions executable by a computer to perform the functions of:  
accessing a database of structured and data, ~~the structured data comprising a set of data tuples;~~  
~~accessing a source of unstructured data, the unstructured data including free text relatable to the data tuples of the structured data;~~  
reading customer records from said database, a record including a structured data portion and a free text portion;  
linguistically parsing the identified text records;  
identifying thematic roles and relationships within the parsed text records;  
applying caseframes to the linguistic parse and thematic identifications producing attribute

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extractions, each of said attribute extractions containing attribute information of the derived source text;

~~interpreting the free text to produce a set of construed data reflecting at least one relational fact conveyed in the free text, each construed datum relatable to a data tuple of the structured data;~~

integrating the extractions with produced data with the data tuples of the structured data, said integrating step producing integrated data;

~~reading the integrated data;~~ and

rendering at least one visual representation of the integrated data.

Claim 2 (original) 2. A computer program product according to claim 1, wherein said accessing a source of unstructured data accesses unstructured data contained within the database of structured data.

Claim 32 (original) 3. A computer program product according to claim 1, wherein said accessing a source of unstructured data and said accessing a database of structured data access two separate data sources.

Claim 4 (original) 4. A computer program product according to claim 1, wherein said instructions are further executable to perform the function of applying caseframes while performing said interpreting the free text.

Claim 5 (original) 5. A computer program product according to claim 1, wherein said instructions are further executable to perform the function of producing a new database containing the integrated data produced by said integrating.

Claim 6 (currently amended) 6. A computer program product according to claim 1, wherein said instructions are further executable to perform the function of inserting the integrated produced data into the database of structured data while performing said integrating of the

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integrated produced data.

Claim 7 (currently amended) 7. A computer program product according to claim 1, wherein said instructions are further executable to perform the function of creating a new database while performing said integrating step the data.

Claim 8 (original) 8. A computer program product according to claim 7, wherein the instructions are further executable to produce a new relational database containing the integrated data produced by said integrating.

Claim 9 (original) 9. A computer program product according to claim 7, wherein the instructions are further executable to produce a file containing the integrated data produced by said integrating.

Claim 10 (original) 10. A computer program product according to claim 9, wherein the instructions are further executable to produce a file having a format selected from the group of XML, character separated values, spreadsheet formats and file-based database structures.

Claim 11 (original) 11. A computer system including a computer program product according to claim 1, further comprising: a processing unit coupled to said one or more storage media devices, said processing unit being capable of executing said instructions; and an execution command unit, whereby operation of said instructions and said processing unit may be commanded or controlled.

Claim 12 (currently amended) 12. A computer program product according to claim 1, wherein said instructions are further executable to store an integrated database while performing said integrating step the produced data.

Claim 13 (currently amended) 13. A computer program product according to claim 1,

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wherein the integrated data produced by the performance of said integrating step ~~the produced~~ data includes reference information to the original free text for construed data.

Claim 14 (original) 14. A computer program product according to claim 1 ~~claim 1-9~~, wherein said instructions are further executable to provide the functions of: accepting a user indication to make a selection to drill down in a rendering of a visual representation of the integrated data; displaying the original free text referenced by the included reference information of the data selected by the user.

Claim 15 (currently amended) 15. A computer program product located to one or more storage media devices usable to perform integration of mixed format data, said computer program product comprising instructions executable by a computer to perform the functions of:

accessing a database of structured data and unstructured data that is related to the structured data, the unstructured data including free text, the structured data comprising a set of data tuples;

~~—accessing a source of unstructured data, the unstructured data including free text, natural language text relating to the data tuples of the structured data;~~

~~interpreting the free text, natural language text to produce a set of construed data reflecting at least one relational fact conveyed in the free text, each construed datum relating to a data tuple of the structured data;~~

linguistically parsing free text from said database;

identifying thematic roles and relationships within the parsed text;

applying caseframes to the linguistic parse and applying thematic identifications to produce attribute extractions, each of said attribute extractions containing attribute information of the parsed text;

~~—integrating the extractions with produced data with the data tuples of the structured data, said integrating step producing integrated data;~~

providing the integrated data to a data visualization application.

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Claim 16 (original) 16. A computer program product according to claim 15, wherein said accessing a source of unstructured data accesses unstructured data contained within the database of structured data.

Claim 17 (original) 17. A computer program product according to claim 15, wherein said accessing a source of unstructured data and said accessing a database of structured data access two separate data sources.

Claim 18 (original) 18. A computer program product according to claim 15, wherein said instructions are further executable to perform the function of applying caseframes while performing said interpreting the free text.

Claim 19 (original) 19. A computer program product according to claim 15, wherein said instructions are further executable to perform the function of producing a new database containing the integrated data produced by said integrating.

Claim 20 (currently amended) 20. A computer program product according to claim 15, wherein said instructions are further executable to perform the function of inserting the produced data into the database of structured data while performing said integrating function ~~the produced data~~.

Claim 21 (currently amended) 21. A computer program product according to claim 15, wherein said instructions are further executable to perform the function of creating a new database while performing said integrating step ~~the produced data~~.

Claim 22 (currently amended) 22. A computer program product according to claim 21, wherein the instructions are further executable to produce a new relational database containing the integrated data ~~produced by said integrating~~.

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Claim 23 (original) 23. A computer program product according to claim 21, wherein the instructions are further executable to produce a file containing the integrated data produced by said integrating.

Claim 24 (original) 24. A computer program product according to claim 21, wherein the instructions are further executable to produce a file having a format selected from the group of XML, character separated values, spreadsheet formats and file-based database structures.

Claim 25 (original) 25. A computer system including a computer program product according to claim 15, further comprising: a processing unit coupled to said one or more storage media devices, said processing unit being capable of executing said instructions; and an execution command unit, whereby operation of said instructions and said processing unit may be commanded or controlled.

Claim 26 (currently amended) 26. A computer program product according to claim 15, wherein said instructions are further executable to store an integrated database while performing said integrating step ~~the produced data~~.

Claim 27 (currently amended) 27. A computer program product according to claim 15, wherein the integrated data produced by the performance of said integrating ~~the produced data~~ includes reference information to the original free text ~~for construed data~~.

Claim 28 (currently amended) 28. A method for integrating mixed format data, comprising the steps of:

accessing database of structured and unstructured data, the unstructured data including free text and the free text relating to the structured data, the structured data comprising a set of data tuples;

~~accessing a source of unstructured data, the unstructured data including free text, natural language text relating to the data tuples of the structured data;~~

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~~interpreting the free text, natural language text to produce a set of construed data reflecting at least one relational fact conveyed in the free text, each construed datum relatable to a data tuple of the structured data;~~

linguistically parsing free text from said unstructured data;

identifying thematic roles and relationships within the parsed text;

applying caseframes and thematic identifications to the linguistic parse to produce attribute extractions, each of said attribute extractions containing attribute information of the parsed text;

~~integrating the produced data with the data tuples of the structured data;~~

~~reading the integrated data; and rendering at least one visual representation of the integrated data.~~

Claim 29 (original) 29. A method according to claim 28, wherein said accessing a source of unstructured data accesses unstructured data contained within the database of structured data.

Claim 30 (original) 30. A method according to claim 28, wherein said accessing a source of unstructured data and said accessing a database of structured data access two separate data sources.

Claim 31 (original) 31. A method according to claim 28, wherein said performing said interpreting the free text applies caseframes.

Claim 32 (original) 32. A method according to claim 28, further comprising the step of producing a new database containing the integrated data produced by said integrating.

Claim 33 (original) 33. A method according to claim 28, further comprising the step of inserting the produced data into the database of structured data.

Claim 34 (original) 34. A method according to claim 28 further comprising the step of creating a new database.

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Claim 35 (original) 35. A method according to claim 34, wherein the new database is a relational database.

Claim 36 (original) 36. A method according to claim 34, wherein new database includes at least one file containing the integrated data produced by said integrating.

Claim 37 (original) 37. A method according to claim 36, wherein the new database has a format selected from the group of XML, character separated values, spreadsheet formats and file-based database structures.

Claim 38 (original) 38. A method according to claim 28, wherein said step of integrating the produced data stores an integrated database.

Claim 39 (currently amended) 39. A method according to claim 28, wherein the integrated data produced by the performance of said integrating the produced data includes reference information to the original free text ~~for constructed data~~.

Claim 40 (original) 40. A method according to claim 39, further comprising the steps of: accepting a user indication to make a selection to drill down in a rendering of a visual representation of the integrated data; displaying the original free text referenced by the included reference information of the data selected by the user.



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